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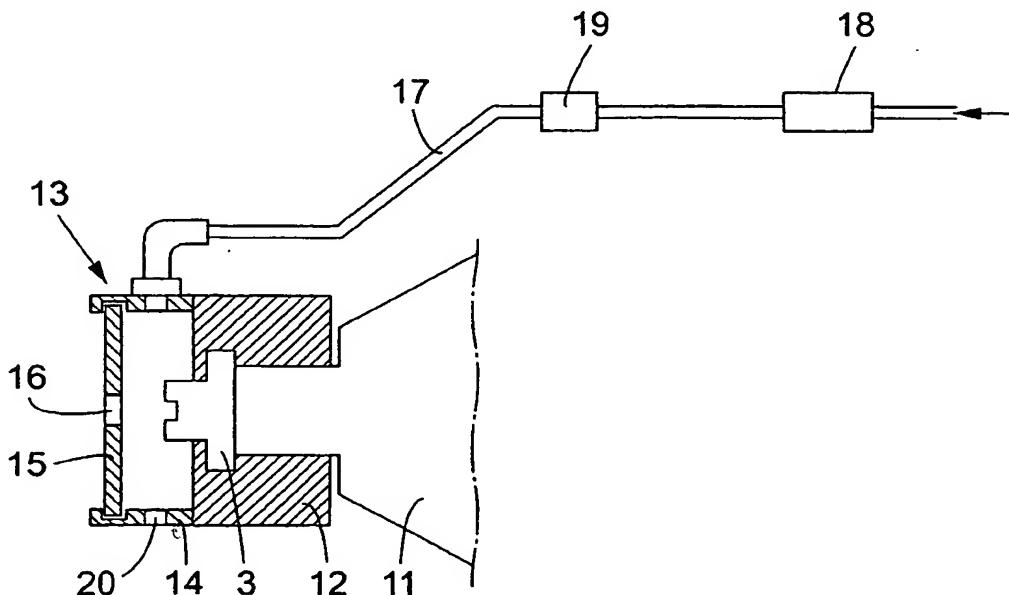
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(54) Title: A METHOD AND DEVICE FOR KEEPING A NUMBER OF SPRAY NOZZLES IN A PRINTING PRESS BEAM CLEAN



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(57) Abstract: In order to keep a spray nozzle (3) in a printing press spray beam (1) clean, air with a certain overpressure is supplied to a cover (5; 13; 24) surrounding the spray nozzle (3), the spray cone from the spray nozzle leaving the cover undisturbed through a slot (7; 16; 26) therein.

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*For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.*

A method and device for keeping a number of spray nozzles in a printing press beam clean.

**Technical Field**

5 The present invention relates to a method and device for keeping a spray nozzle in a printing press spray beam clean.

**Background of the Invention**

10 A spray beam is arranged in the proximity of a printing press roller for spraying fountain solution thereon. This fountain solution is needed for obtaining the intended printing function in the printing press, as is well known in the art. (Other liquids than fountain solution could alternatively be sprayed.)

15 It is also well known in the art that at the high speed rotation of the different rollers in the printing press, it is difficult to obviate the formation of a mist of printing ink and other matters in and around the press. The printing ink also causes certain problems in the 20 operation of the press.

The printing ink mist causes clogging of the spray nozzles of the spray beam, so that their intended spray function gradually deteriorates and the spray pattern of the spray beam is changed.

25 A prior attempt to solve the problem with clogged spray nozzles in a special situation is revealed in WO 0187603, where an air stream is caused to flow towards the printing press roller in the spray casing covering the area between the spray beam and the roller.

30 **The Invention**

According to the invention the above mentioned problem can be solved in that air with a certain overpressure is supplied to a cover surrounding the spray nozzle, the spray cone from the spray nozzle leaving the 35 cover undisturbed through a slot therein.

A cover 13 is individually provided for each spray nozzle 3. In the present case it has the form of a short sleeve 14, connected in a way not shown (but possibly by means of a bayonet joint) to the cap 12 and possibly made 5 of a plastic material, and an end plate 15 inserted in a circumferential groove in the end of the sleeve 14. The end plate 15 has an oblong slot 16 for the spray cone from the spray nozzle 3 to pass through.

An air conduit 17 for the supply of clean air with a 10 certain overpressure is connected to the sleeve 14. The air conduit 17 can be provided with a main valve with a pressure regulator 18 and a throttle valve 19 for controlling the air flow. The members 18 and 19 may be common for several air conduits 17 to several spray nozzles 15 3. Means may be provided in the cover 13 for evenly distributing the air inside the cover.

The sleeve 14 may be provided with a drainage hole 20 in its bottom portion.

The provision of a separate end plate 15 is based on 20 manufacturing considerations. As an alternative the cover 13 may be made as an integrated unit.

The embodiment according to Fig 3 may be especially suitable for existing spray beams, as the cover arrangement for each spray nozzle may be mounted without modifications 25 to the existing device.

The embodiment according to Fig 4 may be more suitable for new arrangements, where the design freedom is greater. In this case the spray valve 8 is provided with a separate main air conduit 21 extending from spray valve to 30 spray valve in the spray beam. An air bore 22 extends forward in the valve from the air conduit 21. The diameter of the bore 22 is such that a throttling for the air is accomplished in order to control the air flow.

The cap device 23 for connecting the spray nozzle 3 35 with the spray valve 11 is integrated with the cover

arrangement 24, possibly having an end plate 25 provided with a slot 26.

5 A partition wall bearing against the spray nozzle 3 has a number of through holes 27 for supplying air into the cover 24, which may be provided with a drainage hole 28.

It is believed that favourable results can be obtained with an air pressure in the region of 1.0- 1.5 bar, probably 1.2 bar, and an air flow of for example up to 1 litre/min or more, but these figures are in no way meant 10 to be limiting for the scope of the invention.

## CLAIMS

1. A method for keeping a number of spray nozzles (3) in a printing press spray beam (1) clean, characterized in that air with a certain flow rate is supplied to a cover (5; 13; 24), surrounding each single spray nozzle (3) and having an opening (7; 16; 26) for a spray cone from the spray nozzle (3), in that the air flow rate is controlled by means of a throttling device (10; 19; 22) connected to each single cover (5; 13; 24), and in that the air flow is low enough not to disturb the spray from the nozzle (3).  
10
2. A device for keeping a number of spray nozzles (3) in a printing press spray beam (1) clean, each spray nozzle (3) being surrounded by a separate cover (5; 13; 24) comprising an opening (7; 16; 26) for a spray cone from the spray nozzle (3), characterized in that each cover (5; 13; 24) is connected to air flow control means (8-10; 17-19; 21, 22, 27), each air flow control means (8-10; 17-19; 21, 22, 27) comprising a throttling device (10; 19; 22) that restricts the air flow enough to leave the spray cone undisturbed.  
15  
20
3. The device according to claim 2, wherein the opening (7; 16; 26) in the cover (5; 13; 24) has the form of a slot.  
25
4. The device according to claims 2 and 3, wherein each cover (13; 24) is provided with a drainage hole (20; 28).  
30
5. The device according to any of the preceding claims 2-4, wherein an external air conduit (17) is connected to the covers (13).

6. The device according to any of the preceding claims 2-5, wherein a spray valve (11) for the spray nozzle (3) is provided with an internal air conduit (21) and an air bore (22) connected to the cover (24).

5

7. The device according to claim 6, wherein the air bore (22) has such a diameter that a throttling effect is obtained.

10

8. The device according to any of the preceding claims 2-7, wherein each cover (13; 24) is formed as a short sleeve (14; 24) connected to a spray valve cap (12; 23) and having an end plate (15; 25) attached to its end remote from the spray nozzle (3), the end plate being 15 provided with the opening (16; 26).

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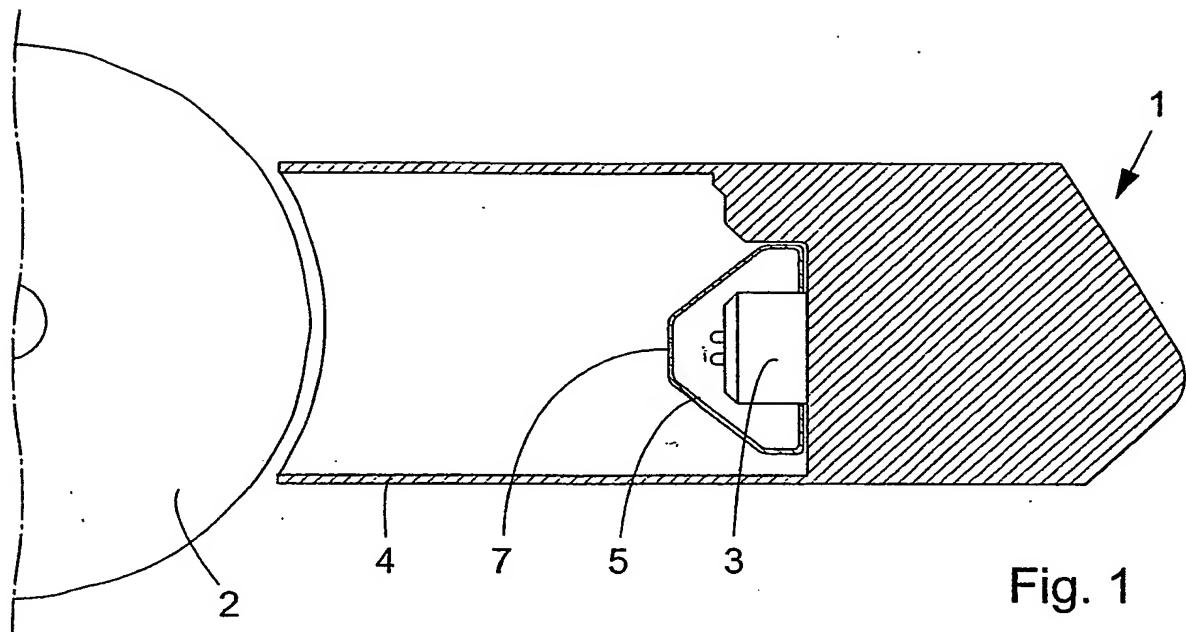


Fig. 1

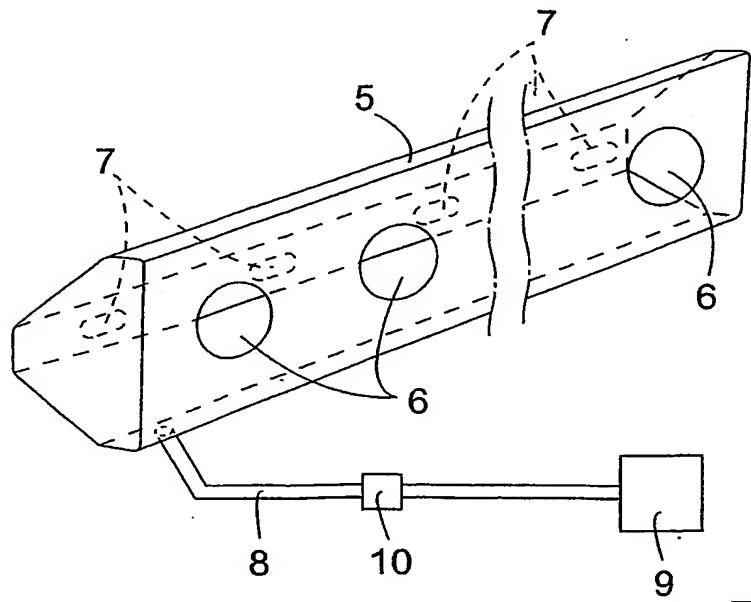


Fig. 2

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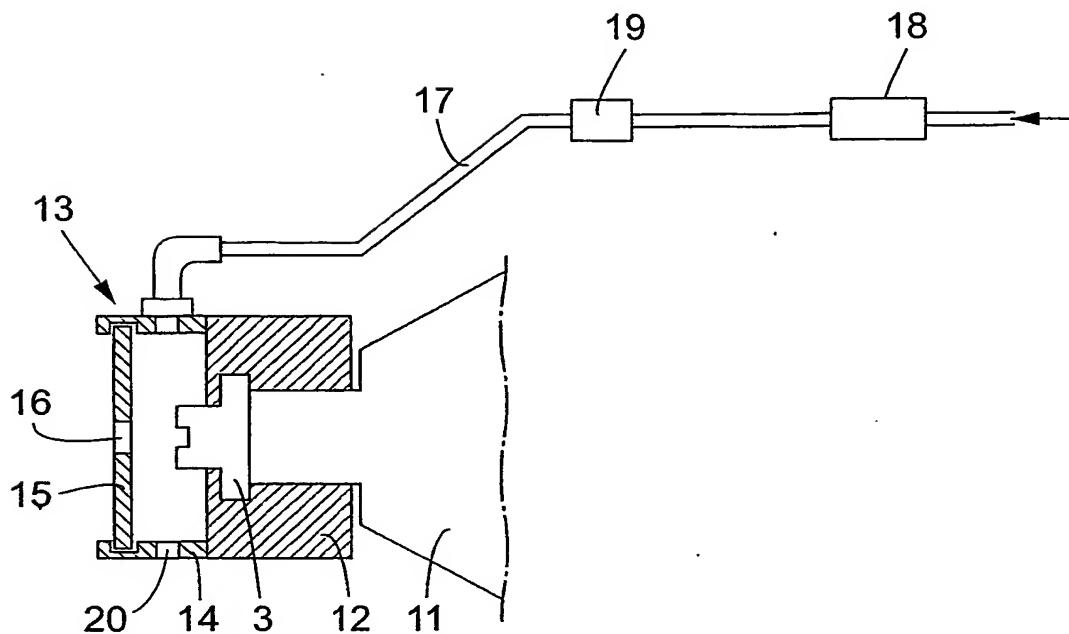


Fig. 3

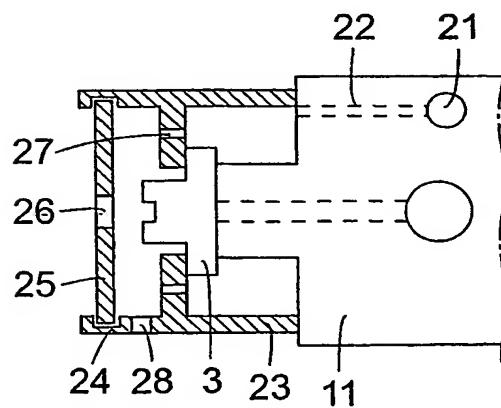


Fig. 4